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EXAMINER
SAMUEL, DEWANDA A

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/518,156	SEBIRE, BENOIST
	Examiner	Art Unit	
	DeWanda Samuel	2616	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 July 2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-10* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-5 and 7-10* is/are rejected.

7) ☒ Claim(s) *6* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *10 December 2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a) ☒ All   b) ☐ Some * c) ☐ None of:

  1. ☒ Certified copies of the priority documents have been received.

  2. ☐ Certified copies of the priority documents have been received in Application No. _____.

  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   **Claim 10** is rejected under 35 U.S.C. 102(b) as being anticipated by Nara (US

Patent 6,009,544).

With regard to claim 10, Nara discloses having a *receiver comprising:*

a de-interleaver for de-interleaving information bits from received transmission bursts,

each of the information bits being assigned with an index; Nara discloses having

receiving apparatus comprised of a deinterleaver (fig.4) receiving data

sequentially... deinterleaving reception data ("information bits", column 10 line 65-67 and

column 11 line 1-26). Nara further discloses having fig. 5 data index by addresses.

and means for determining if any of the indexes has been modified before

transmission of the transmission bursts, the de-interleaver being arranged to de-

interleave the information bits either based on modified values of the indexes or

originally assigned values of the indexes based on the determination. Nara discloses

having 6-bit binary counting unit 42 of the addressing unit 40 ("means for determining

indexes has been modified')... the deinterleaver deinterleaves data based on the

modified values (column 3 line 34-55).

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   **Claims 1,2 and 4** rejected under 35 U.S.C. 102(e) as being anticipated by Park

et al. (US Patent 6,735,723).

With regard to claim 1,Park et al. discloses having a *method in a transmitter for*

interleaving information bits from a data block into transmission bursts, each of the

information bits being assigned with an index, the interleaving comprising computing

positions of the information bits in the transmission bursts such that the values of the

indexes of at least a portion of the information bits are modified. Park et al. discloses

having a apparatus and method for processing interleaving/deinterleaving with address

generator and channel encoding system using the same (title). Park et al. further

discloses having a interleaving/deintrerleaving used in a channel encoding system

whereby the source data being transmitted in fig. 1(column 6 line 51-60). In addition,

Park et al. the interleaving comprised of bits sequence that is indexed which are

inputted into frames ("burst") which are expressed 0,1,2,...,N-1 (column 8 line 1-9).

Also, Park et al. change the bit sequence using the index (column 8 line 11-67).

With regard to claim 2, Park et al. teaches the method recited in claim 1.

wherein the modification of said indexes comprises shifting the values of the indexes to

be modified by means of a shift term. (column 8 line 50-58).

With regard to claim 4, Park et al. teaches the method recited in claim 1.

comprising determining if modification of the values of the indexes is required. (column

8 line 20-46).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 3 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Park et al. (US Patent 6,735,723) as applied to claim 1 and 4 above, and further in view

of Takeshita et al. (" New Classes of Algebraic Interleavers for Turbo-Codes", 1998).

With regard to claim 3, Park et al. teaches the method recited in claim 2.

wherein each information bit to be included in one of the transmission bursts is provided

with an index number, and the sum of the index number of each information bit and the

shift term forms the modified value of the index of said information bit for use in the

computations. Park et al. discloses having bit sequence ("information bit") included in a

frame (" transmission burst") and a index value (" index number") respective to the bit

sequence (column 8 line 11-45). However, Park et al. does not explicitly discloses the

sum of the index number of each information bit and the shift term forms the modified

value of the index of said information bit for use in the computations. Takeshita et al.

discloses having a element with a one-to-one index mapping and a Theorem I.1 thereby

calculating the index values and the shifting term that change the value of the index (

column 1 line 7-40).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have bit sequence ("information bit") included in a

frame (" transmission burst") and a index value (" index number") as taught by Park et

al. with a one-to-one index mapping and a Theorem I.1 thereby calculating the index

values and the shifting term that change the value of the index Takeshita et al. providing

a channel encoding system whereby efficiently increasing coding rates.

With regard to claim 5, Park et al. teaches the method recited in claim

4.*wherein the determination comprises determining if a half of the size of the data block*

can be divided by the depth of interleaving. Park et al. discloses having a

interleaving/deinterleaving technique used in a channel encoding system (column 6 line

51-60). Hoewever, Park et al. does not explicitly discloses determination comprises

determining if a half of the size of the data block can be divided by the depth of

interleaving. Takeshita et al. discloses interweavers utilizing turbo-codes assuming ½

the rate...in Theorem 1.1 discloses the block length being divided.

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have a interleaving/deinterleaving technique used in

a channel encoding system utilizing turbo-codes assuming ½ the rate as taught by

Takeshita et al. providing a channel encoding system whereby increasing coding rates.

8.   **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et

al. (US Patent 6,735,723) as applied to claim 1 above, and further in view of Lee te al. (

US Patent 6,259,744).

With regard to claim 7, Park et al. teaches the method recited in claim 1.

wherein the transmitter is used for transmitting in a GSM/EDGE radio access network.

Park et al. discloses having a channel encoding system transmitting source data to a

decoder 170 (column 6 line 52-60). However, Park et al. does not explicitly discloses

having a transmitter is used for transmitting in a GSM/EDGE radio access network. Lee

et al. discloses having a packet control unit 24 (PCU, "transmitter")controls the

communication of data packets to and from the base station 14 within a digital

communication network 10 which includes a radio access network ...the base station

may implement GSM/EDGE (column 3 line 48-67).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have channel encoding system transmitting source

data to a decoder 170 as taught by Park et al. within a GSM/EDGE radio access

network as taught by Lee et al. Providing a efficient mechanism for transmitting burst of

information over a time vary channel.

9.   **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hatakeyama (US Patent 6,452,985) in view of Nara (US Patent 6,009,544).

With regard to claim 8, Hatakeyama discloses having a *method in a receiver*

for de-interleaving information bits from received transmission bursts, each of the

information bits being assigned with an index, the de-interleaving comprising:

determining if the value of any of the indexes has been modified before transmission of

the transmission bursts; Hatakeyama discloses having a receiver 105 comprised of a

de-interleaving the demodulated data from the 384 symbols comprising the data

transfer rate transfer 9600 bps ("transmission burst", column 9 line 1-15)... also transfer

rate of about 19200 bps is in the form of burst data (column 8 line 65-67)... It is inferred

the transfer rate is in the form of burst data. However, Hatakeyama does not disclose

each of the information bits being assigned with an index, the de-interleaving

comprising: determining if the value of any of the indexes has been modified before

transmission of the transmission bursts. Nara discloses having receiving apparatus

comprised of a deinterleaver (fig.4) receiving data sequentially... deinterleaving

reception data ("information bits", column 10 line 65-67 and column 11 line 1-26). Nara

further discloses having fig. 5 data ("information bits") index by addresses.

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have receiver 105 comprised of a de-interleaving as

taught by Hatakeyama receiving data sequentially... deinterleaving reception data

("information bits") as taught by Nara to provide a rearranging mechanism whereby

reorder data into correct order or original order.

Hatakeyama et al. does not disclose *and based on the determination, de-*

interleaving the information bits either based on modified values of the indexes or

originally assigned values of the indexes. Nara discloses having 6-bit binary counting

unit 42 of the addressing unit 40 ("means for determining indexes has been

modified')...the deinterleaver deinterleaves data (information bits") based on the

modified values (column 3 line 34-55).

Therefore it would have been obvious to one having ordinary skill in the art at the

time of the invention was made to have receiver 105 comprised of a de-interleaving as

taught by Hatakeyama receiving data sequentially...deinterleaving reception data

("information bits") as taught by Nara to provide a rearranging mechanism whereby

reorder data into correct order or original order.

10. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Abe (US Patent 6272,123) in view of Park et al. (US Patent 6,735,723).

With regard to claim 9, Abe discloses having a *transmitter comprising: an*

interleaver for interleaving information bits from a data block into transmission bursts,

each of the information bits being assigned with an index, and means for computing

positions of the information bits in the transmission bursts such that the values of the

indexes of at least a portion of the information bits are modified before said interleaving.

Abe discloses having a CDMA transmitter-receiver comprised of a interleaver 14 which

carries out the interleaving to reduce the effect of burst errors (column 4 line 25-35 and

fig. 1). However, Abe does not disclose each of the information bits being assigned with

an index, and means for computing positions of the information bits in the transmission

bursts such that the values of the indexes of at least a portion of the information bits are modified before said interleaving. Park et al. the interleaving comprised of bits sequence that is indexed which are inputted into frames ("burst") which are expressed 0,1,2,...,N-1 (column 8 line 1-9). Also, Park et al. change the bit sequence using the index (column 8 line 11-67). Also, it known in the art the interleaver receives burst and reduces the burst error.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to have a transmitter-receiver comprised of a interleaver as taught by Abe interleaving bits sequence that is indexed which are inputted into frames ("burst") as taught by Park et al. to reduce the burst error in frames.

Allowable Subject Matter

11.   **Claim 6** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior Art

12.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Falconer et al. (US patent 5,159,608) discloses having a method and apparatus for

using orthogonal coding in a communication system.

Kim et al. (PG PUB 2002/0186784) discloses having a method and apparatus for

rearranging codeword sequence in a communication system.

Prasad (US Patent 6,553,517) discloses having interleavers and de-interleavers.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DeWanda Samuel whose telephone number is (571)

270-1213. The examiner can normally be reached on Monday- Thursday 8:30-5:30

EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ricky Q. Ngo can be reached on (571) 272-3139. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DeWanda Samuel
12/25/2007

RICKY Q. NGO
SUPERVISORY PATENT EXAMINER